

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

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1. A method of obtaining an oligonucleotide capable of carrying out a predetermined biological function, comprising:

5 (a) generating a heterogeneous pool of oligonucleotides,  $x + y + z$  nucleotides in length, said oligonucleotides comprising a 5' randomized sequence,  $x$  nucleotides in length, a central preselected sequence,  $y$  nucleotides in length, and a 3' randomized sequence,  $z$  nucleotides in length, said heterogeneous pool having nucleic acid sequences representing a random sampling of the  $4^{x+z}$  possible sequences for oligonucleotides of said length,

10 (b) introducing a random sampling of said heterogeneous pool of oligonucleotides into a population of cells that do not exhibit the predetermined biological function,

(c) thereafter screening said population of cells for a subpopulation of cells exhibiting said predetermined biological function, and

15 (d) isolating from said subpopulation of cells an oligonucleotide comprising said preselected sequence and capable of carrying out said predetermined biological function.

2. A method of obtaining an oligonucleotide capable of carrying out a predetermined biological function, comprising:

5 (a) generating a heterogeneous pool of oligonucleotides,  $n$  nucleotides in length, from a mixture of nucleotides consisting essentially of  $a\%$  adenine,  $t\%$  thymidine,  $c\%$  cytosine, and  $g\%$  guanine, wherein  $a + t + c + g = 100\%$ , said heterogeneous pool having nucleic acid sequences representing a random sampling of the  $4^n$  possible sequences for oligonucleotides of said length generated from nucleotides of said relative percent concentrations,

10 (b) introducing a random sampling of said heterogeneous pool of oligonucleotides into a population of cells that do not exhibit the predetermined biological function,

(c) thereafter screening said population of cells for a subpopulation of cells exhibiting said predetermined biological function, and

15 (d) isolating from said subpopulation of cells an oligonucleotide capable of carrying out said predetermined biological function.

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